



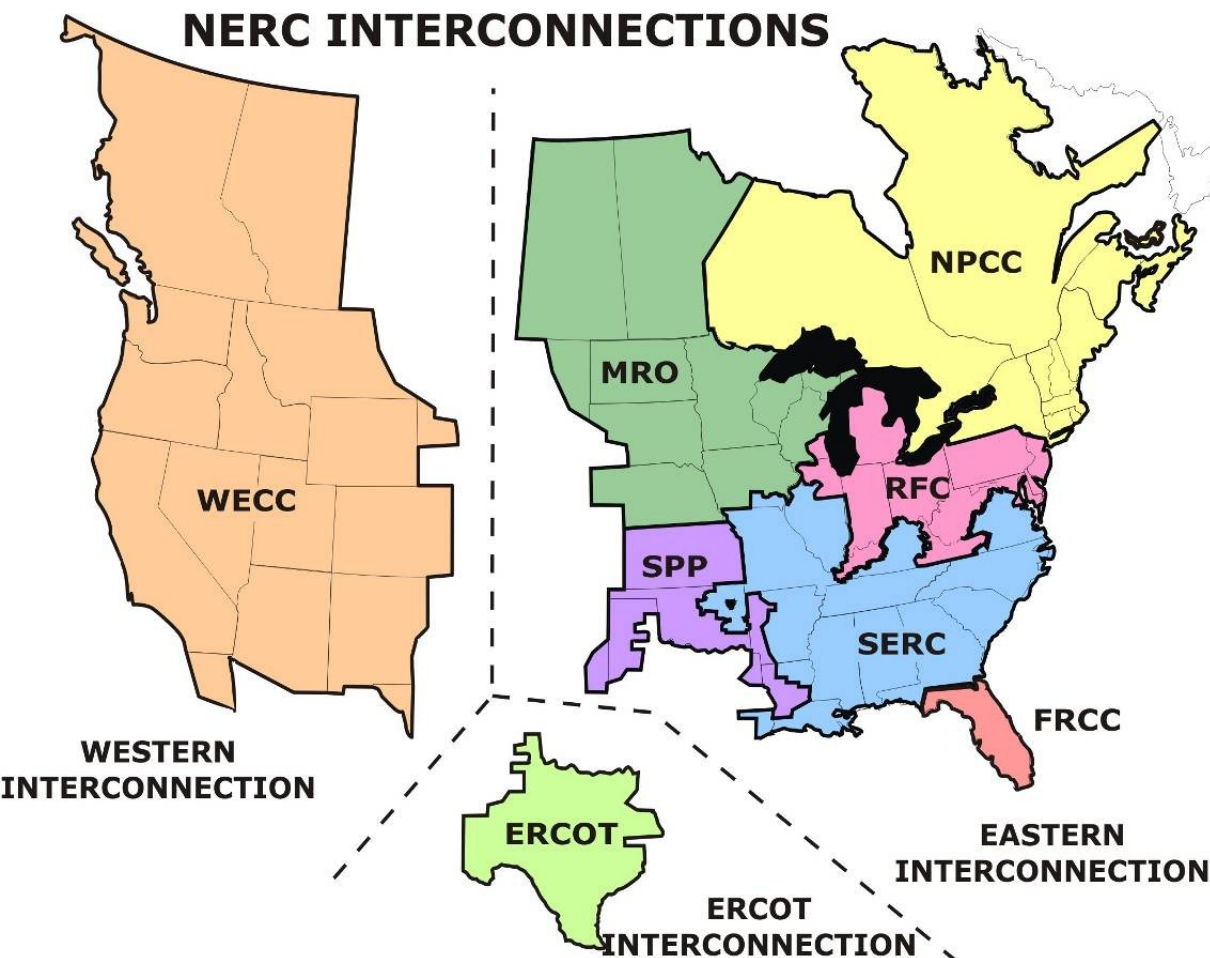
# Planning for our Energy Future



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# The ERCOT Interconnection



**The ERCOT Region is one of 3 NERC grid interconnections.**

**The ERCOT grid has:**

- 75% of Texas land
- 85% of Texas load
- 40,500 miles of transmission lines
- 550+ generation units
- 68,379 MW peak demand (set 8/3/2011)

**1,106 MW of Asynchronous Tie Capacity (820 MW with Eastern Interconnection)**

**2,877 MW of generation can switch between ERCOT and the Eastern interconnection**



# What Does ERCOT DO?

The Electric Reliability Council of Texas (ERCOT) manages the flow of electric power on the transmission system. We are responsible for the reliability and adequacy of the transmission grid.

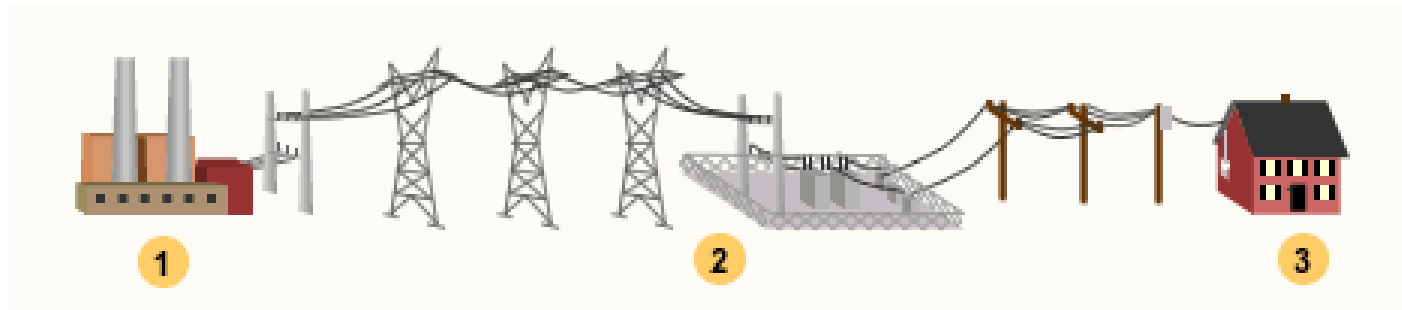


ERCOT also performs financial settlement for the competitive wholesale bulk-power market and administers retail switching for 6.6 million premises in competitive choice areas.

# What is a Deregulated Electricity Market?

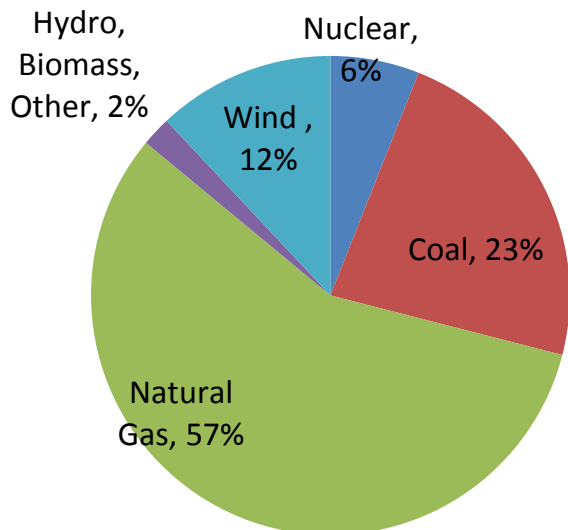
## In ERCOT:

- Any party can connect their generation to the transmission system
- Retail customers can choose their electricity service provider
- Transmission and distribution (T&D) are still regulated
- ERCOT, Inc., plans and operates the transmission system and facilitates the deregulated wholesale and retail markets



# ERCOT Generation Resources

## Installed Capacity - 2010



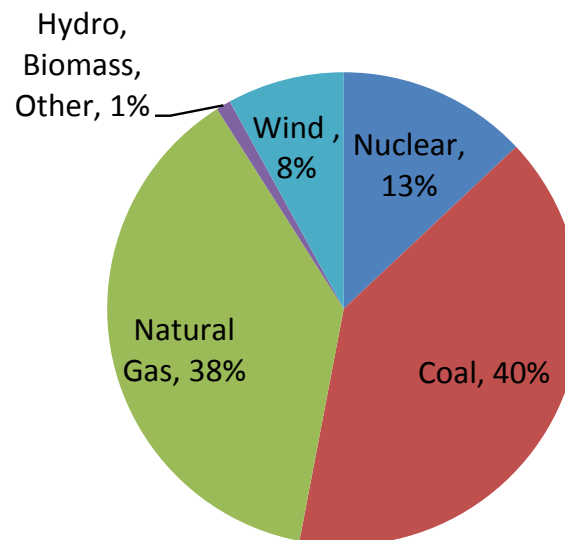
The ERCOT wholesale generation market is an “energy-only” market

ERCOT administers day-ahead and real-time markets for energy and ancillary services

Generation is redispatched in the real-time market every 5 minutes by a centralized security-constrained economic dispatch (SCED) process

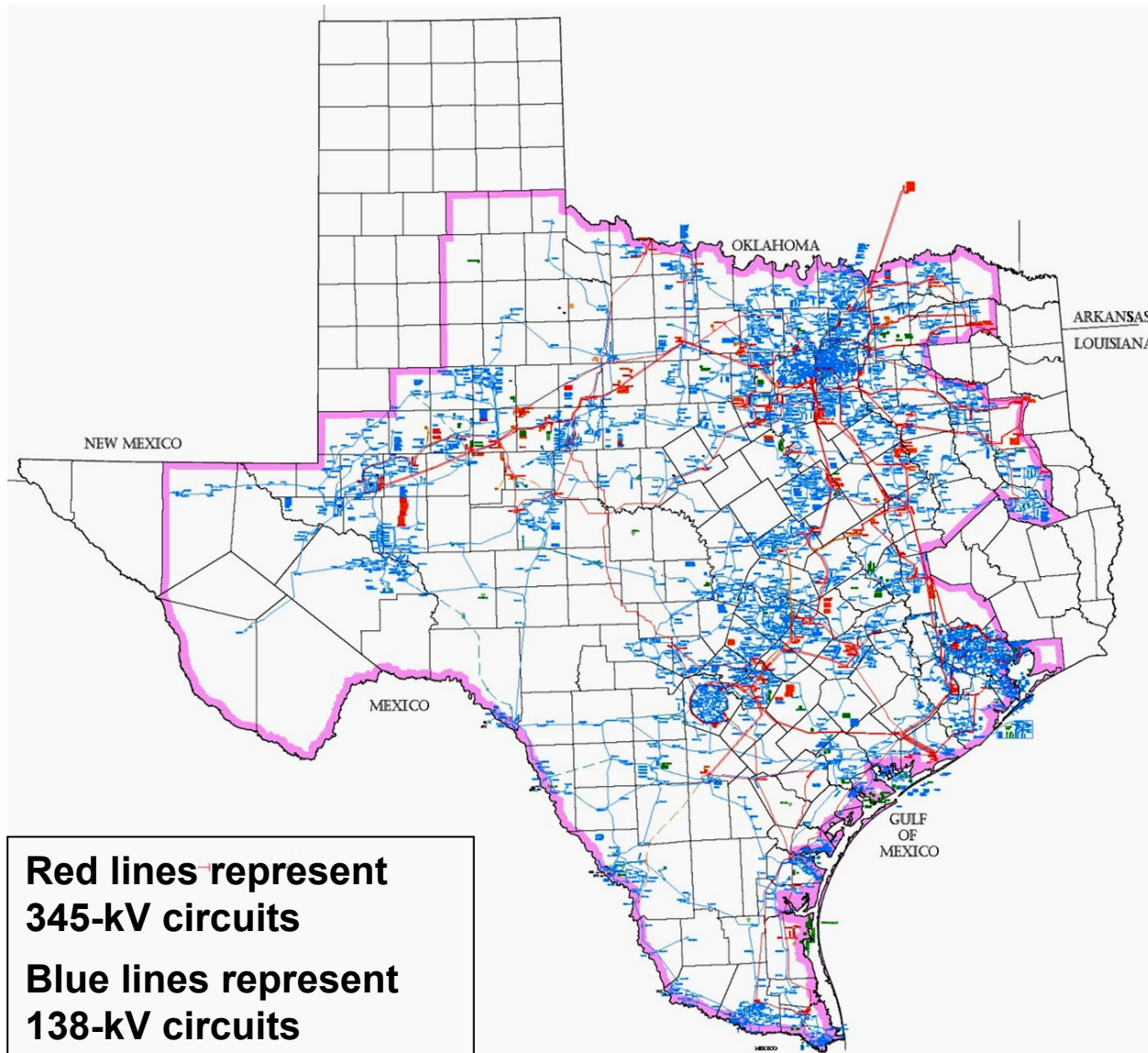
Many customers in ERCOT can choose their electric service provider (deregulated electric retail market)

## Energy Produced - 2010





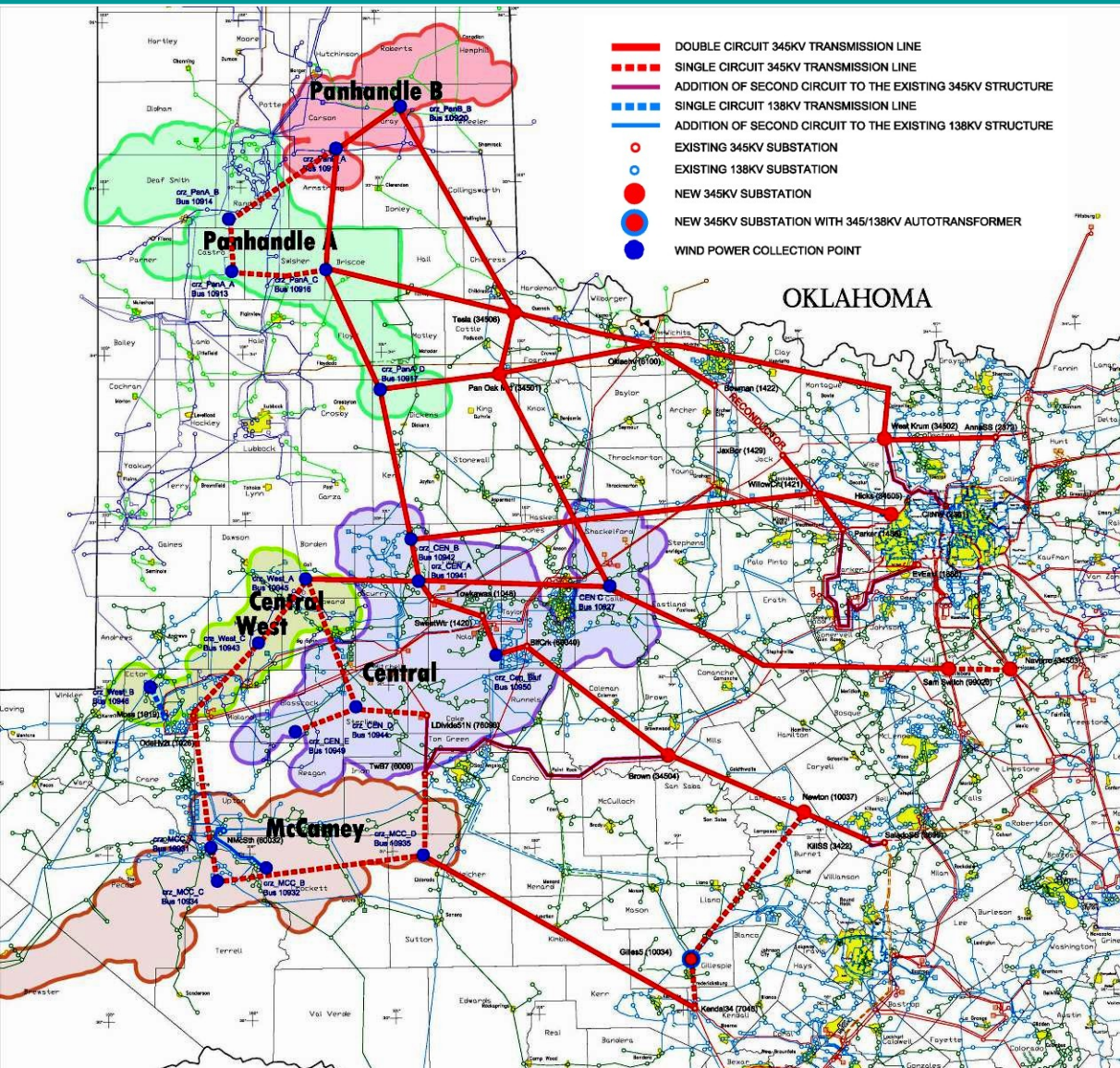
# The Current ERCOT Transmission System



**Transmission and distribution companies are regulated by the PUCT.**

**All transmission improvements (including generation interconnection projects) are paid for by loads based on their pro-rata share of peak loads**

# New Transmission for Renewable Energy



Following statute, the Public Utility Commission of Texas designated 5 Competitive Renewable Energy Zones (CREZs) and ordered construction of 2,376 circuit miles of new 345-kV transmission (to be completed by 12/31/2013)

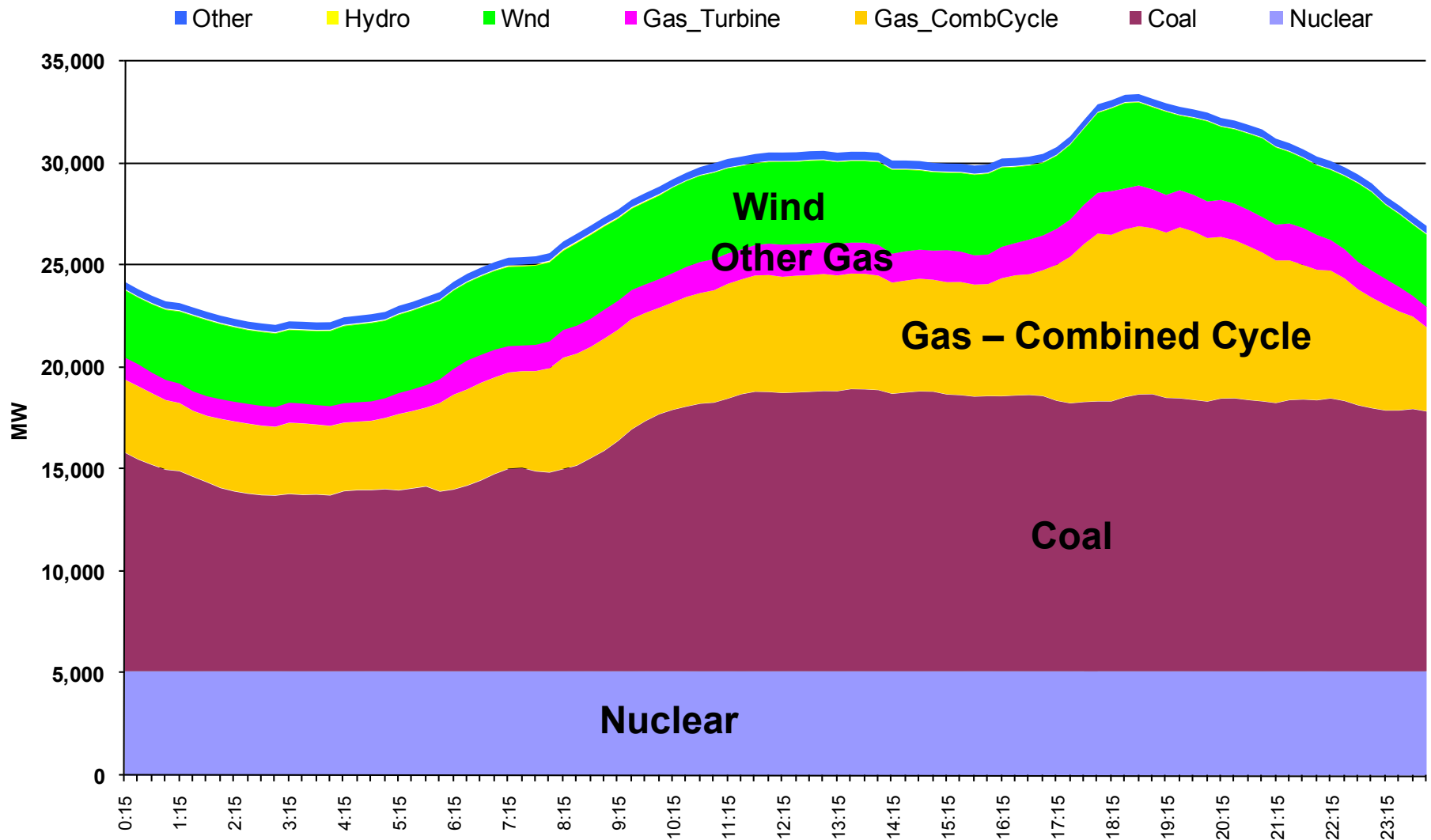
ERCOT currently has 9,452 MW of wind generation

Peak instantaneous wind generation: 7,400 MW (October 7, 2011)

Peak instantaneous wind generation as a percentage of load: 25.8% (7,227 MW; December 11, 2010)

33,921 MW of wind and 1,494 MW of solar projects are currently being evaluated for interconnection

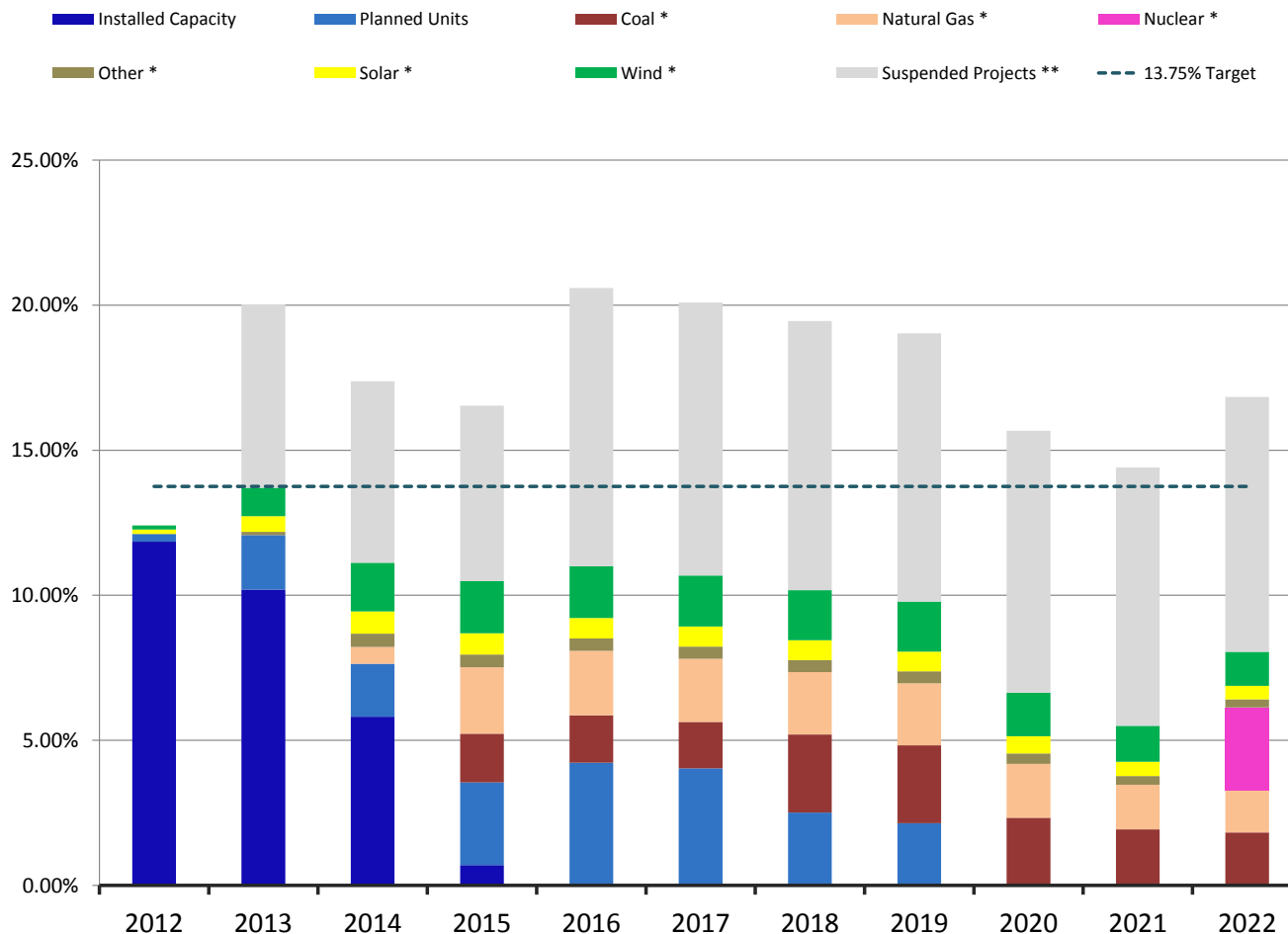
# ERCOT Generation – December 26, 2008





# ERCOT Resource Reserve Margin

Reserve Margin for Capacity in the ERCOT Region



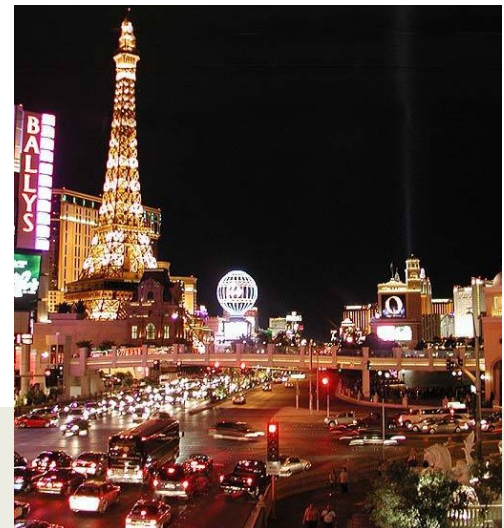
Reserve margins are increasingly tight, as adequacy of resources becomes a reliability concern.

# ERCOT Transmission Planning

## Three primary considerations:

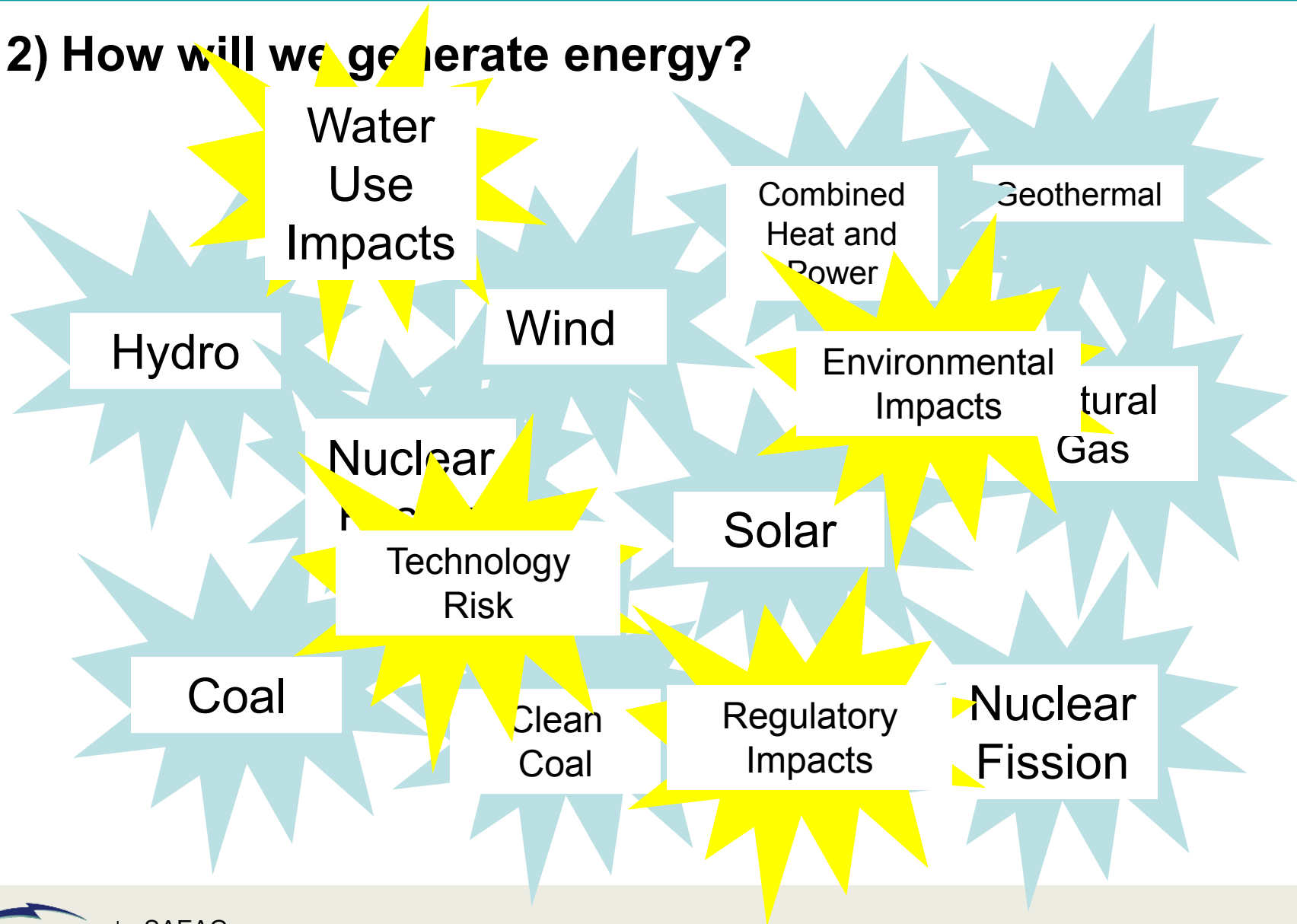
### 1) What will the customer demand be in the future?

- Maximum annual demand and daily load shapes
- What new areas will become “electrified” (e.g., transportation)?
- What will be the size of the average home?
- How much will we invest in energy efficiency?
- What new gadgets will people have?



# Second Consideration

## 2) How will we generate energy?





# Third Consideration

## 3) How will the power get to the customer?

### Generation Far from Load:

- Coal
- Gas
- Nuclear
- Wind
- Solar
- Geothermal
- Hydro

**Land-Use  
Considerations  
Equity Issues**



### Generation Close to Load:

- Solar
- Gas

# DOE Funding for Long-Term Studies

**ERCOT received a grant in April, 2010 from the Department of Energy to improve our Long-Term Study process.**

- **Three primary study goals:**
  - To expand ERCOT long-term planning capabilities by developing new tools and processes that can be used in this and future studies
  - To enhance stakeholder involvement and input into the ERCOT long-range planning process in a manner that is consensus-seeking, sustainable and consistent with the established ERCOT stakeholder framework.
  - To review the role of long-range planning within the established ERCOT planning process.

# Project Timeline

Milestone	Kick-off Meetings	Draft Interim Report due to DOE	Interim Report due to DOE	LTSA for State Legislature	Draft Final Report	Final Report due to DOE
Timeline	April, 2010	June, 2011	August, 2011	December, 2012	April, 2013	June, 2013
Work Product	Initial Development Business as Usual Case (BAU) & Modeling		Alternative Scenario Development & Modeling		Final work product	
Stakeholder Process	Monthly introductory meetings		Quarterly LTS meetings with interim workgroup meetings			

## Activities To Date:

- Developed base tools to evaluate resource expansion and transmission needs
- Stakeholders have defined an initial future scenario (Business as Usual) and sensitivities (fuel price and PTC)
- Developed potential resource expansions for BAU and sensitivities
- Fostered participation in LTS by existing ERCOT stakeholder committees
- Work to-date is summarized in an Interim Project Report

(<http://www.ercot.com/committees/other/lts/>)



# Long-Term Study Task Force – Knowledge Gaps

The LTSTF needs assistance in the development of base assumptions for some technologies:

- Demand-side resources
- Solar Resources
- Storage technologies
- Geothermal
- Electric Vehicles

ERCOT is working with stakeholder groups and other interested parties to compile the necessary technical information

Using these base assumptions, the market viability and system benefits of the technologies can be evaluated in a range of potential future scenarios

Please join us – for more info contact [LongTermStudy@ercot.com](mailto:LongTermStudy@ercot.com)





Questions?

